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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,087	03/18/2004	Mitsuru Hasegawa	PHCF-04015	4164

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EXAMINER	
ZERVIGON, RUDY	

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No. 10/803,087	Applicant(s) HASEGAWA ET AL.	
	Examiner Rudy Zervigon	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/27/2004*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant's temperature control means is not detailed in Applicant's specification.

4. Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, because the best mode contemplated by the inventor has not been disclosed. Evidence of concealment of the best mode is based upon Applicant's temperature control means is not detailed in Applicant's specification. What is the best mode for the claimed "temperature control means"?

5. Claims 1-16 are recites the limitation "the other section". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102/103

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Okase; Wataru (US 5,592,581 A). Okase teaches a semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23), comprising: a reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) that includes a gas flow path (65,66; Figure 7) to allow source gas to pass through and a substrate (2; Figure 7) mount site (support for 2; Figure 7) provided in the gas flow path (65,66; Figure 7) to mount a substrate; a temperature control means (75; Figure 7; column 9, line 47 - column 10, line 23) that is disposed opposite to the substrate (2; Figure 7) mount site (support for 2; Figure 7) and close to the reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) to control the internal temperature of the reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) and a thermal conductivity adjusting member ("ceramic wool" inside 72; Figure 7; column 9, lines 53-61) that is disposed between the reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) and the temperature control means (75; Figure 7; column 9, line 47 - column 10, line 23); wherein the thermal conductivity adjusting member ("ceramic wool" inside 72; Figure 7; column 9, lines 53-61) has a first section with a thermal conductivity different from the other section along the

gas flow path (65,66; Figure 7), as claimed by claim 1. That Okase's thermal conductivity adjusting member ("ceramic wool" inside 72; Figure 7; column 9, lines 53-61) has a variable thermal conductivity along the gas flow path (65,66; Figure 7) is likely anticipated according to the form of Okase's ceramic wool thermal conductivity adjusting member. Wooly material is anticipated to have void spaces resulting in variable thermal conductivity[1].

Okase further teaches:

i. The semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23) according to claim 1, wherein: the temperature control means (75; Figure 7; column 9, line 47 - column 10, line 23) is a cooling device, as claimed by claim 2

ii. The semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23) according to claim 1, wherein: the first section has an interspace[1] formed between the reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) and the thermal conductivity adjusting member ("ceramic wool" inside 72; Figure 7; column 9, lines 53-61), as claimed by claim 3

iii. The semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23) according to claim 3, wherein: the interspace[1] has a variable height along the gas flow path (65,66; Figure 7), as claimed by claim 4

iv. The semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23) according to claim 1, wherein: the first section is of a material whose thermal conductivity is different from that of the other section, as claimed by claim 5

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[1] **Wool 3 b:** a filamentous mass. Merriam-Webster's Collegiate Dictionary - 10th Ed. p.1362

v. A semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23), comprising: a reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) that includes a gas flow path (65,66; Figure 7) to allow source gas to pass through and a substrate (2; Figure 7) mount site (support for 2; Figure 7) provided in the gas flow path (65,66; Figure 7) to mount a substrate; and a temperature control means (75; Figure 7; column 9, line 47 - column 10, line 23) that is disposed opposite to the substrate (2; Figure 7) mount site (support for 2; Figure 7) and close to the reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) to control the internal temperature of the reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23); a wherein the reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) has a section with a wall thickness smaller than the other section to form an interspace (volume 72 less "wool"; Figure 7; column 9, lines 53-61) between the reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) and the temperature control means (75; Figure 7; column 9, line 47 - column 10, line 23), as claimed by claim 6

vi. The semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23) according to claim 6, wherein: the temperature control means (75; Figure 7; column 9, line 47 - column 10, line 23) is a cooling device, as claimed by claim 7

vii. The semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23) according to claim 6, wherein: the interspace (volume 72 less "wool"; Figure 7;

column 9, lines 53-61) has a variable height along the gas flow path (65,66; Figure 7), as claimed by claim 8

viii. A semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23), comprising: a reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) that includes a gas flow path (65,66; Figure 7) to allow source gas to pass through and a substrate (2; Figure 7) mount site (support for 2; Figure 7) provided in the gas flow path (65,66; Figure 7) to mount a substrate; a temperature control means (75; Figure 7; column 9, line 47 - column 10, line 23) that is disposed opposite to the substrate (2; Figure 7) mount site (support for 2; Figure 7) and close to the reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) to control the internal temperature of the reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23); a plate member (surface 72, Figure 7; column 9, lines 53-61) that is disposed opposite to the substrate (2; Figure 7) mount site (support for 2; Figure 7) in the gas flow path (65,66; Figure 7); and a thermal conductivity adjusting member ("ceramic wool" inside 72; Figure 7; column 9, lines 53-61) that is disposed between the temperature control means (75; Figure 7; column 9, line 47 - column 10, line 23) and the plate member (surface 72, Figure 7; column 9, lines 53-61); wherein the thermal conductivity adjusting member ("ceramic wool" inside 72; Figure 7; column 9, lines 53-61) has a first section with a thermal conductivity different from the other section along the gas flow path (65,66; Figure 7), as claimed by claim 9 – see claim 1 for rationale.

ix. The semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23) according to claim 9, wherein: the temperature control means (75; Figure 7; column 9, line 47 - column 10, line 23) is a cooling device, as claimed by claim 10

x. The semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23) according to claim 9 wherein: the first section has an interspace (volume 72 less "wool"; Figure 7; column 9, lines 53-61) formed between the reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) and the thermal conductivity adjusting member ("ceramic wool" inside 72; Figure 7; column 9, lines 53-61), as claimed by claim 11

xi. The semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23) according to claim 11, wherein: the interspace (volume 72 less "wool"; Figure 7; column 9, lines 53-61) has a variable height along the gas flow path (65,66; Figure 7), as claimed by claim 12

xii. The semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23) according to claim 11, wherein: the first section is of a material whose thermal conductivity is different from that of the other section, as claimed by claim 13 – refer to claim 1 rationale.

xiii. A semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23), comprising: a reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) that includes a gas flow path (65,66; Figure 7) to allow source gas to pass through and a substrate (2; Figure 7) mount site (support for 2; Figure 7) provided in the gas flow path (65,66; Figure 7) to mount a substrate; a

temperature control means (75; Figure 7; column 9, line 47 - column 10, line 23) that is disposed opposite to the substrate (2; Figure 7) mount site (support for 2; Figure 7) and close to the reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) to control the internal temperature of the reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23); and a plate member (surface 72, Figure 7; column 9, lines 53-61) that is disposed opposite to the substrate (2; Figure 7) mount site (support for 2; Figure 7) in the gas flow path (65,66; Figure 7); wherein the reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) has a section with a wall thickness smaller than the other section to form an interspace (volume 72 less "wool"; Figure 7; column 9, lines 53-61) between the reaction vessel (processing vessel within and including 72; Figure 7; column 9, line 47 - column 10, line 23) and the temperature control means (75; Figure 7; column 9, line 47 - column 10, line 23), as claimed by claim 14

xiv. The semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23) according to claim 14, wherein: the temperature control means (75; Figure 7; column 9, line 47 - column 10, line 23) is a cooling device, as claimed by claim 15

xv. The semiconductor film formation device (Figure 7; column 9, line 47 - column 10, line 23) according to claim 14, wherein: the interspace (volume 72 less "wool"; Figure 7; column 9, lines 53-61) has a variable height along the gas flow path (65,66; Figure 7), as claimed by claim 16

In the event that "filamentous masses" are not deemed to have variable thermal conductivities:

It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the density of Okase's ceramic "filamentous masses".

Motivation to optimize the density of Okase's ceramic "filamentous masses" is for optimizing Okase's reaction temperature as taught by Okase (column 1, lines 35-64).

Conclusion

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (703) 872-9306. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

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